

# Thank God it's Friday: Student Attendance in Classes Just before Weekend

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## Abstract

It is generally assumed that attendance level in Friday classes at an undergraduate level is low compared to other days of the week. The purpose of this study is to validate this assumption. A Chi-square analysis was performed on the attendance of all students enrolled in a Mechanical, Electrical, and Plumbing course in Spring 2017, offered at a state university in Texas. The results indicated that the number of absences in Friday classes was significantly higher than in other classes of the week; the Chi-square value was found to be 83.376 at the level of significance (p-value) of less than 0.0001. Some probable reasons for this student behavior has been reported in the study. A few remedial measures have also been suggested.

Keywords: Chi-square; Friday classes; Mechanical, Electrical, & Plumbing Course; Student Attendance

## 1. Introduction

On any given Friday, most of the college campuses seem less crowded than other days of the work week [1]. There are some reports that bear testimony to the fact that students avoid Friday classes, either by not attending them or not registering for any [2]. It is also evidenced by the sparsely populated classrooms. This phenomenon is nothing new; a study conducted in 1996 reveals that student absences are significantly higher on Fridays than those on other days of the week [3]. The study also indicates that the rate of absence increases significantly with an increase in class size. The self-reported reasons for absence ranged from feeling too tired due to work throughout the week to going home for the upcoming weekend.

The author offers a course on Mechanical, Electrical, and Plumbing (MEP) Systems in Buildings to Construction Science students at a state university. The course deals with design, operation, materials and installation methods of mechanical, electrical, and plumbing systems in construction. Learning outcomes and objectives of the course are as follows:

1. Describing how the contractor delivers MEP systems that provide safe, comfortable, and high performing indoor environments.
2. Explaining coordination issues in building construction and MEP systems.
3. Using simple heating and cooling load estimates for buildings in the selection of component parts of the heating, ventilation and air conditioning systems.
4. Identifying appropriate electrical service entrance and distribution systems for residential and commercial

construction including load calculations and conductor sizing.

5. Describing plumbing water supply and waste/vent subsystems, their components, and operating parameters.

The classes are usually scheduled to be held on Mondays, Wednesdays, and Fridays both in Fall and Spring semesters. Number of students enrolled in any one section ranges from 80 to 150. Friday classes seem to be poorly attended, compared to the classes on other days of the week. In order to find out whether the predominance of Friday class absences is true for this course, it was hypothesized that the number of student absences would be significantly higher on Fridays than those on other days of the week.

## 2. Methodology

### 2.1 Study Population

The study population consists of students who registered for a Mechanical, Electrical, and Plumbing course at an undergraduate level in a state university for Spring semester in 2017. Number of students enrolled for this course was 137 students (11 females and 126 males). The sample size includes the entire attendance record of all students for the semester.

### 2.2 Data Collection

Data related to the study was collected from the instructor's own database. The unit of analysis was student attendance. There were a total of 4932 data points (1507, 1781, and 1644 for Mondays, Wednesdays, and Fridays respectively) for the entire semester.

### 2.3 Variables

Day (DAY). It is the day of the week when the class meeting was held. It was a category variable with three levels: Monday (MONDAY), Wednesday (WEDDAY), and Friday (FRIDAY).

Absence (ABSENCE). It indicates the absence of a student from a class meeting held on specified days of the week. It was a category variable with two levels: "YES" for absence from the class meeting, "NO" for not being absent.

### 2.4 Analysis

A Chi-square test was performed to determine the relationship between student absences and the days of the week in which class meetings were held. It is a non-parametric test of statistical significance for bivariate tabular analysis. A hypothesis tested with Chi-square is whether or not two different samples are different enough in some characteristic or aspect of their behavior so that we

can generalize from our samples that the populations from which our samples are drawn are also different in the behavior or characteristic. The Chi-square test is also used to determine whether there is a significant difference between the expected frequencies and the observed frequencies in one or more categories. If the Chi-square value is found to be larger than the critical value at a chosen probability of error threshold, then the data present a statistically significant relationship between variables used in the test.

The formula for calculating Chi-square is:

$$X^2 = \sum \{(o - e)^2 / e\} \quad (1)$$

Where,  $X^2$  = Chi statistic,  $o$  = observed data, and  $e$  = expected data.

## 2.5 Results

The results of the analysis are shown in Tables 1 and 2.

Table 1. Cross tabulation of DAY vs. ABSENT

DAY		ABSENT		Total
		NO	YES	
FRIDAY	Count	1303	341	1644
	% within DAY	79.3%	20.7%	100%
MONDAY	Count	1355	152	1507
	% within DAY	89.9%	10.1%	100%
WEDDAY	Count	1570	211	1781
	% within DAY	88.2%	11.8%	100%
Total	Count	4228	704	4932
	% within DAY	85.7%	14.3%	100.0%

Table 2. Chi-square test

Item	Value	df	Asymptotic Sig. (2-sided)
Pearson Chi-Square	86.376	2	<0.0001
N of Valid Cases	4932		

The Chi-square value (86.376) was found to be quite high at a level of significance of less than 0.0001. The results showed that the proportions of students not attending classes were 20.7%, 10.1%, and 11.8% on Fridays, Mondays, and Wednesdays respectively. The difference in proportions was found to be statistically significant. In other words, the results indicated that overall student attendance in class meetings differed significantly among

the three days of the week. Students enrolled for the course in Spring semester of 2017 cut the Friday classes more than the Monday and Wednesday classes. A graphical representation of student absence is given in Figure 1.

## 3. Discussions

The findings of the study indicate that Friday classes for Mechanical, Electrical, and Plumbing Systems in Buildings course offered by the author are least attended by the students, compared to the Monday and Wednesday classes. However, the author does not have a theory that clarifies this particular student conduct. Some probable reasons for student absences on any day of the week may be illness, time required for completion of other course works, boredom, or interference with their social life. But that does not explain why all these excuses should be predominantly applicable to Fridays.

Wood et al. [4] argues that Friday being the end of the week, they resort to week-end like behavior such as drinking from Thursday evening. Consequently, those students fail to attend the classes on the following day. Paschall et al. [5], on the other hand, argue that students, who consume alcohol on Thursdays, are less likely to enroll for a class that meets on Fridays.

A study done by Timmins & Kaliszer [6] reveals that cutting classes and not doing ward duties on Fridays by nursing students are due to so-called "sickness." The authors term it as "voluntary absence," because the main reasons for not showing up in the classes are social commitments and stress. The author finds it as a viable explanation for cutting classes on Fridays by the MEP students also. For some students, it may be a convenient way of extending the weekend.

An interesting article by Moore [1] indicates that students who live in dorms disappear from campus on Fridays to head home. They look forward to an extended weekend for having home-cooked meals, getting their laundry done by moms, and catch up with high school friends. In some cases, students make this sojourn to hold onto their hometown week-end jobs. They refrain from doing anything with "campus" during this period. The author calls it a "suitcase culture."

Are there any consequences for such absences? Most researchers of pedagogical studies agree that absenteeism is a major factor of poor academic performance. Students who are habitual absentees, receive fewer hours of instruction. As a result, they have a poor understanding of the subject matter that affects their grades in assignments, exams, and home works. High rates of student absenteeism are believed to affect regular attendees also, because instructors must accommodate the non-regular ones in the same class.

In order to find out whether Friday absences in MEP systems course made any difference in student grades, another Chi-square was performed using the data collected. It was done by cross tabulation of overall student performance in the MEP systems course for Spring 2017 semester and Friday class attendance. Letter grades (A, B, C, and OTHER) were used in the analysis. Since a letter grade of D is not considered as a passing grade for this

course, grades lower than C (D and F) were combined together and termed as OTHER. Friday class attendance was divided into two categories; absences of two days and lower were termed as LOW, and those higher than two were termed as HIGH. The results of the analysis are shown in Tables 3 and 4.

Table 3. Cross tabulation of GRADE vs. FRIDAY ABSENCE

GRADE CATEGORY			FRIDAY ABSENCE		Total
			HIGH	LOW	
GRADE	A	Count	11	13	24
		% within GRADE	45.8%	54.2%	100.0%
	B	Count	27	41	68
		% within GRADE	39.7%	60.3%	100.0%
	C	Count	15	23	38
		% within GRADE	39.5%	60.5%	100.0%
	OTHER	Count	7	0	7
		% within GRADE	100.0%	.0%	100.0%
Total		Count	60	77	137
		% within GRADE	43.8%	56.2%	100.0%

Table 4. Chi-square test

Item	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.774	3	0.021
N of Valid Cases	137		

The Chi-square value (9.774) was found to be moderately high at a level of significance of 0.021. The results showed that 54.2, 60.3, and 60.5 percent of the students getting the grades of A, B, and C respectively have a low number of Friday class absences; none of those receiving a grade of OTHER has low Friday class absences. A graphical representation of Friday student absence is given in Figure 2.

Most students who cut Friday classes could probably figure out that this practice hurt their performance, by looking at their mid-semester grades. This is revealed by the fact that there is a statistically significant difference between Friday absences early in the semester (FREARLY) and those in late in the semester (FRLATE). A t-test shows that it is statistically significant at the level of less than 0.0001 (see Table 5 and Figure 3).

Table 5. Paired sample t-test

Pair	t-value	df	Sig. (2-sided)
FREARLY-FRLATE	8.313	136	<0.0001

There is a gradual trend of making Fridays class-free. Some universities schedule fewer classes on Fridays for financial reasons [7]. By closing the school one additional day a week, the schools probably save on utility costs, such as electricity, water, and heating and air conditioning. But that does not solve the academic problem. It essentially provides an incentive to the students to make Thursday the "new" Friday. Some researchers, however, argue that in a three-days-per-week mode, a class session is too short to allow students to have a grasp of the materials discussed. If class meetings are held two days per week by skipping Fridays, then the class sessions would be one and half times longer, making the discussions more effective [7].

Many universities across the nation still schedule Friday classes in equal proportions. The instructors expect the students to attend the classes. Ensuring wider participation in classroom activities is one of the ways to attract students to these sessions. One technique for achieving this objective that the author frequently used in the classes is reciprocal peer tutoring. The class is divided into small groups ranging from three to five students. The groups meet every Friday during the class period, discuss the materials that were presented by the tutor on the previous days, develop a series of questions on the materials, and use the questions to quiz one another. The questions with correct answers are handed to the tutor at the end of the class. These questions become part of the instructor's data bank used for building course exams. The author has observed an increase in class attendance when this technique was used. But it is very time-consuming and works only for small classes.

## 4. Conclusions

The results of Chi-square test for the study confirm the hypothesis that the number of student absences in Mechanical, Electrical, and Plumbing Systems in Buildings, offered in a public university in Texas, differs significantly ( $p < 0.0001$ ) among Mondays, Wednesdays, and Fridays. Student attendances are much lower on Fridays than those on other days of the week. The results of a follow up analysis of the data indicates Friday class absences have a statistically significant effect on overall student performance.

The study, however, did not focus on the reasons of higher number of student absences on Fridays. Some factors such as illness, time used for completion of other course works, tedium, or interference with their social life have been conjectured to be probable causes for such behavior. But it is difficult to explain the predominance of these excuses on Fridays. Some studies suggest that students resort to alcohol consumption on the Thursday evenings, deeming Friday as an extension of the weekend. This may be another reason for missing classes on Fridays.

Techniques to attract students to the classroom are required to be developed ensure wider student participation in academic activities. The author suggests that use of reciprocal peer tutoring as a technique, particularly on Fridays, may provide more empowerment to the students and encourage them to attend the classes. However, this is only a conjecture. Farther studies are recommended focusing particularly on reclaiming Fridays.

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